



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

**Bradley J. Aitchison, Jarmo Maula, Hannu  
Leskinen, Teemu Lang, Pekka Kuosmanen,  
Kari Härkönen and Martti Sonninen**

Confirmation No. 5483

Application No. 10/660,365

Filed: September 10, 2003

For: **PRECURSOR MATERIAL  
DELIVERY SYSTEM FOR ATOMIC  
LAYER DEPOSITION**

Group Art Unit: 1723

Date: February 3, 2004

INFORMATION DISCLOSURE STATEMENT

TO THE COMMISSIONER FOR PATENTS:

1. Pursuant to the duty of disclosure, documents listed on the accompanying Form PTO-1449 (or equivalent) are presented for the Examiner's consideration.
  - ☐ Copies of listed documents are enclosed. (37 CFR § 1.98(a))
  - ☒ Copies of listed U.S. patent documents are omitted because this application was filed after June 30, 2003 and is, thus, subject to image file wrapper processing. Copies of listed foreign patent documents and non-patent literature are enclosed.
  - ☐ Copies of the documents listed on sheet(s) \_\_\_\_\_ of Form SB/08 are omitted because (1) they are already of record in U.S. Patent Application No. \_\_\_\_\_, filed \_\_\_\_\_, on which this application relies for an earlier filing date under 35 U.S.C. § 120; and (2) any information disclosure statement filed in the prosecution of Application No. \_\_\_\_\_, complies with 37 CFR §§ 1.98(a) through (c). (37 C.F.R. § 1.98(d))
2. ☒ The Examiner's attention is directed to the enclosed copy of copending U.S. Patent Application No. 10/400,054, filed March 25, 2003, for HIGH CONDUCTIVITY PARTICLE FILTER, which is cited in this application.
3. This information disclosure statement is being submitted (check box a., b., or c.):
  - a. ☒ Within three months of the filing date of a national application or entry of the national stage in an international application; or before the mailing of a first Office action on the merits; or before the mailing of a first Office action after the filing of a request for continued examination under 37 CFR 1.114. (No statement under 37 CFR 1.97(e) is required.); or

- b. ☐ After the period set forth in paragraph 3a, but before the mailing date of either a final action, a notice of allowance, or an action that otherwise closes prosecution in the application. (Check box i. or ii.)
- i. ☐ A \$180.00 information disclosure statement submission fee set forth in 37 CFR 1.17(p) is enclosed, or
- ii. ☐ A statement specified by 37 CFR 1.97(e) is set forth below; or
- c. ☐ After the mailing date of a final action or notice of allowance and on or before payment of the issue fee. A statement specified by 37 CFR 1.97(e) is set forth below. Enclosed is a \$180.00 information disclosure statement processing fee set forth in 37 CFR 1.17(p).
4. If a statement specified by 37 CFR 1.97(e) is required, the attorney or agent signing below hereby states that:
- ☐ each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement; or
- ☐ no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement.
5. ☒ A concise explanation of the relevance of each document not in the English language and/or selected documents in the English language is set forth below.

Citation No. 35 shows a precursor delivery system used in secret between 1986 and 1993 for delivering  $\text{AlCl}_3$  precursor vapors in atomic layer deposition systems to produce electroluminescent (EL) displays. Applicant believes this information has not been published or publicly disclosed. However, EL displays made with such precursor delivery systems were sold by the Finlux division of Lohja Corporation in Finland more than a year before the filing date of this application. Planar Systems, Inc., the assignee of the present application, acquired the Finlux division of Lohja Corporation in 1991.

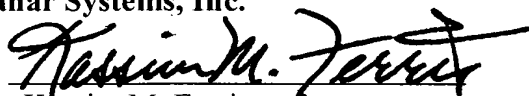
With reference to the drawings of citation No. 35, the precursor delivery system includes a replaceable precursor magazine (31) for holding  $\text{AlCl}_3$  powder. The precursor magazine (31) is inserted in a receiving chamber of the system that is sealed by a lid (20) that can be opened to replace the precursor magazine (31). A coarse particle filter (29) and a fine particle filter (28) are mounted in series over an opening of the precursor magazine (31). The body of the precursor delivery system is heated and a vacuum applied to thereby vaporize the  $\text{AlCl}_3$  precursor within the precursor magazine (31).

A pulse valve (12) is operable to open a passage extending between the precursor magazine (31) and the reaction chamber (not shown) and to thereby control the flow of  $\text{AlCl}_3$  precursor vapors from the magazine (31) into the reaction chamber.

Respectfully submitted,

**Planar Systems, Inc.**

By



Kassim M. Ferris

Registration No. 39,974

STOEL RIVES LLP  
900 SW Fifth Avenue, Suite 2600  
Portland, OR 97204-1268  
Telephone: (503) 224-3380  
Facsimile: (503) 220-2480  
Attorney Docket No. 11429/12:2

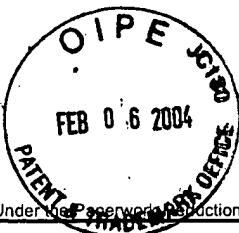


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PTO/SB/08B (08-03)

Approved for use through 07/31/2006. OMB 0651-0031

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**INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

**Complete if Known**

Application Number	10/660,365
Filing Date	September 10, 2003
First Named Inventor	Bradley J. Aitchison
Art Unit	
Examiner Name	
Attorney Docket Number	11429/12:2

Sheet 3 of 3

**NON PATENT LITERATURE DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	35	Cross section drawing of AlCl <sub>3</sub> precursor supply system, Lohja Corporation, 2 pages (unpublished).	

Examiner Signature		Date Considered	
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO:

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